

RESPONSE UNDER 37 C.F.R. § 1.116

EXPEDITED PROCEDURE – Art Unit 1765

Attorney Docket No. 108298758US

Disclosure No. 03-0103.00/US

Amendments to the Claims:

Please cancel claims 25-31 without prejudice to pursuing these claims in a continuation, continuation-in-part, or other application. Following is a complete listing of the claims pending in the application, as amended.

1. (Previously presented) A method for removing material from a microfeature workpiece, comprising:

contacting a microfeature workpiece with a polishing surface of a polishing medium;

placing the microfeature workpiece in electrical communication with a first electrode and a second electrode, the first and second electrodes being spaced apart from the microfeature workpiece;

disposing a polishing liquid between the polishing surface and the microfeature workpiece;

moving at least one of the microfeature workpiece and the polishing surface relative to the other;

passing electrical current through the electrodes and the microfeature workpiece to remove material from the microfeature workpiece while the microfeature workpiece contacts the polishing surface;

passing at least a portion of the polishing liquid through at least one recess in the polishing surface so that a gap in the polishing liquid is formed and located at least partially in the recess and between the microfeature workpiece and a surface of the recess facing toward the microfeature workpiece; and

controlling formation of the gap in the polishing liquid to achieve a desired electropolishing rate.

2. (Original) The method of claim 1 wherein moving at least one of the microfeature workpiece and the polishing surface relative to the other includes rotating the microfeature workpiece.

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3. (Original) The method of claim 1 wherein removing material from the microfeature workpiece includes (a) removing at least a first portion of the material by electrochemical-mechanical polishing and (b) removing no material by direct electropolishing or removing a second portion less than the first portion by direct electropolishing.

4. (Original) The method of claim 1 wherein the surface of the recess includes a surface of the at least one electrode, and wherein passing at least a portion of the polishing liquid through the recess includes passing polishing liquid through the recess with the gap in the polishing liquid being located between the surface of the at least one electrode and a surface of the microfeature workpiece facing toward the surface of the at least one electrode.

5. (Previously presented) The method of claim 1 wherein moving at least one of the microfeature workpiece and the polishing surface includes rotating the polishing surface.

6. (Original) The method of claim 1 wherein moving at least one of the microfeature workpiece and the polishing surface includes rotating the microfeature workpiece at a rate of from about 10 rpm to about 500 rpm.

7. (Original) The method of claim 1 wherein moving at least one of the microfeature workpiece and the polishing surface includes rotating the microfeature workpiece at a rate of from about 50 rpm to about 200 rpm.

8. (Original) The method of claim 1 wherein moving at least one of the microfeature workpiece and the polishing surface includes rotating the microfeature workpiece at a rate of about 100 rpm.

9. (Original) The method of claim 1 wherein moving at least one of the microfeature workpiece and the polishing surface includes rotating the microfeature workpiece at a rate of about 100 rpm or more.

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10. (Original) The method of claim 1 wherein disposing the polishing liquid includes disposing the polishing liquid at a rate of less than one liter per minute.

11. (Original) The method of claim 1 wherein flowing at least a portion of the polishing liquid through at least one recess includes flowing at least a portion of the polishing liquid through a recess having a dimension generally normal to the microfeature workpiece of from about 0.5 mm to about ten mm.

12. (Original) The method of claim 1 wherein flowing at least a portion of the polishing liquid through at least one recess includes flowing at least a portion of the polishing liquid through a recess having a dimension generally normal to the microfeature workpiece of from about two mm to about four mm.

13. (Original) The method of claim 1 wherein flowing at least a portion of the polishing liquid through at least one recess includes flowing at least a portion of the polishing liquid through a recess having a dimension of about 0.375 inch generally parallel to a surface of the microfeature workpiece in contact with the polishing surface.

14. (Original) The method of claim 1 wherein disposing a polishing liquid includes disposing a polishing liquid having TMAH.

15. (Original) The method of claim 1 wherein flowing at least a portion of the polishing liquid through at least one recess includes flowing at least a portion of the polishing liquid through a plurality of intersecting recesses.

16. (Original) The method of claim 1 wherein contacting a microfeature workpiece with a polishing surface includes contacting a downwardly facing surface of the microfeature workpiece with an upwardly facing polishing surface.

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17. (Previously presented) A method for removing material from a microfeature workpiece, comprising:

contacting a microfeature workpiece with a polishing surface of a polishing medium;
placing the microfeature workpiece in electrical communication with a first electrode and a second electrode, the first and second electrodes being spaced apart from the microfeature workpiece;
disposing a polishing liquid between the polishing surface and the microfeature workpiece;
passing an electrical current from the first electrode through the microfeature workpiece to the second electrode to remove material from the microfeature workpiece while the microfeature workpiece is in contact with the polishing surface;
rotating at least one of the microfeature workpiece and the polishing surface relative to the other;
passing at least a portion of the polishing liquid through recesses in the polishing surface so that a gap in the polishing liquid is formed and located at least partially in the recess and between the microfeature workpiece and surfaces of the first and second electrodes located in the recesses, the gap providing a discontinuity in the volume of polishing liquid between the surfaces of the first and second electrodes and a surface of the microfeature workpiece facing toward the surfaces of the first and second electrodes; and
controlling formation of the gap in the polishing liquid to achieve a desired electropolishing rate.

18. (Original) The method of claim 17 wherein removing material from the microfeature workpiece includes (a) removing at least a first portion of the material by electrochemical-mechanical polishing and (b) removing no material by direct electropolishing or removing a second portion less than the first portion by direct electropolishing.

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19. (Original) The method of claim 17 wherein moving at least one of the microfeature workpiece and the polishing surface includes rotating the microfeature workpiece at a rate of about 100 rpm.

20. (Original) The method of claim 17 wherein disposing the polishing liquid includes disposing the polishing liquid at a rate of less than one liter per minute.

21. (Original) The method of claim 17 wherein passing at least a portion of the polishing liquid through at least one recess includes flowing at least a portion of the polishing liquid through a recess having a dimension generally normal to the microfeature workpiece of from about two mm to about four mm.

22. (Original) The method of claim 17 wherein disposing a polishing liquid includes disposing a polishing liquid having TMAH.

23. (Original) The method of claim 17 wherein passing at least a portion of the polishing liquid through recesses includes passing at least a portion of the polishing liquid through a plurality of intersecting recesses.

24. (Original) The method of claim 17 wherein contacting a microfeature workpiece with a polishing surface includes contacting a downwardly facing surface of the microfeature workpiece with an upwardly facing polishing surface.

25-31. (Canceled)

32-49. (Canceled)